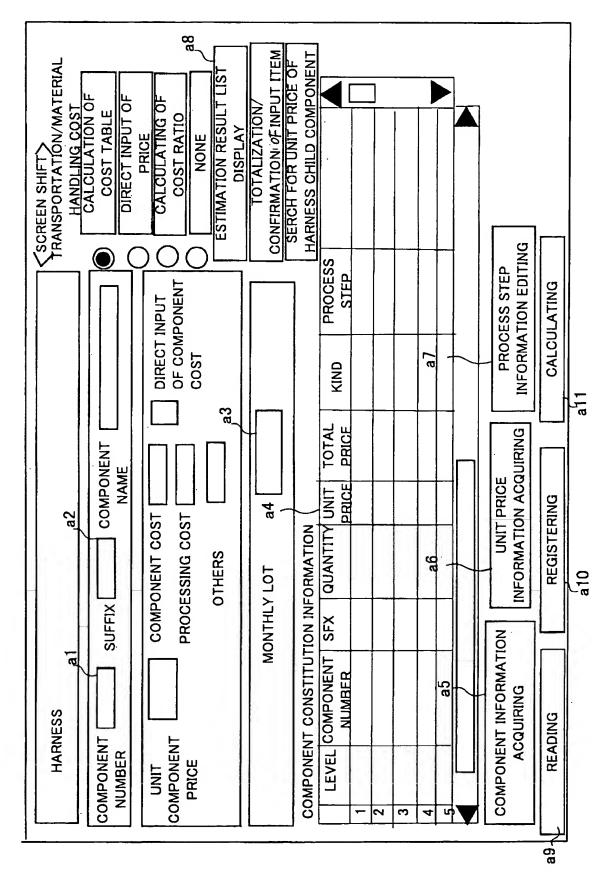
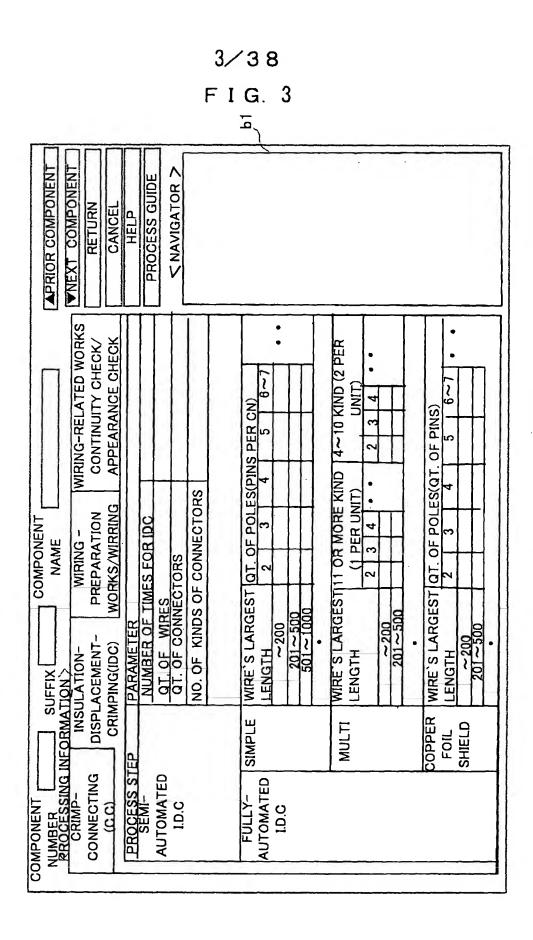
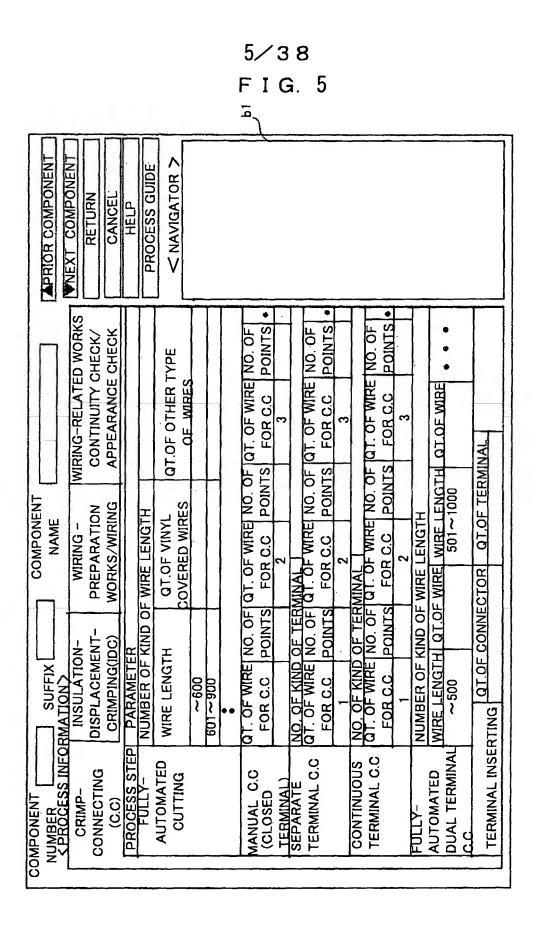


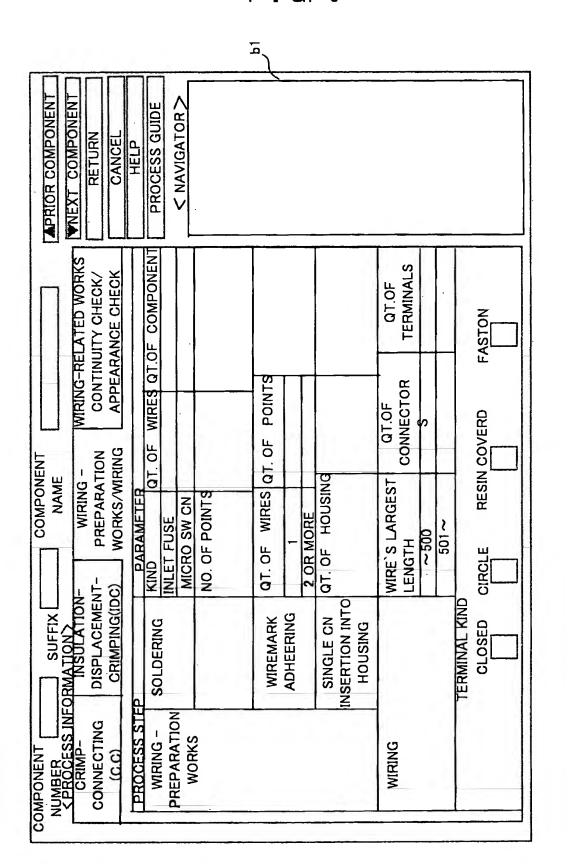
2/38 FIG. 2

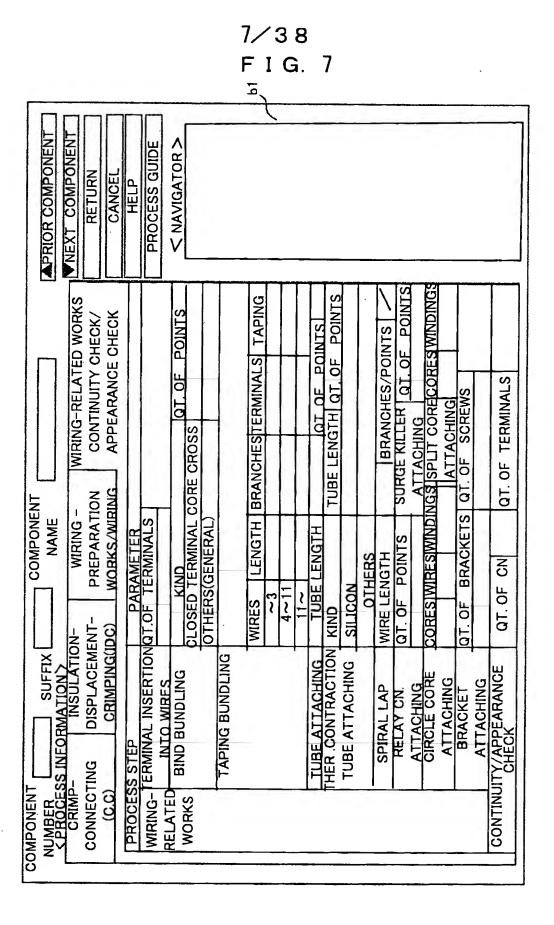


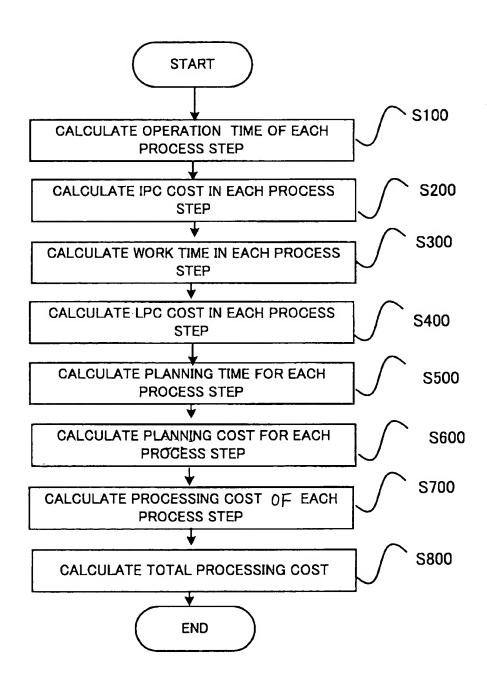


C.C
FULLY-AUTOMATED CUTTING
MANUAL C.C
SEPARATE TERMINAL C.C
CONTINUOUS TERMINAL C.C
FULLY AUTOMATED -DUAL TERMINAL C.C
TERMINAL INSERTING
IDC
SAIDC
FADTIDC(MULTI)
FADTIDC(SIMPLE)
FADTIDC(COPPER FOIL SHIELD)
WIRING -PREPARATION WORKS/WIRING
SOLDERING
INSULATION SLEEVE INSERTION
WIRE MARK ADHERING
SINGLE ON INSERTION INTO HOUSING
WIRING
WIRING-RELATED WORKS CONTINUITY CHECK/APPEARANCE
CHECK
TERMINAL INSERTION INTO WIRES BIND BUNDLING
TUBE ATTACHING
THERMAL CONTRACTION TUBE ATTACHING
SPIRAL LAP BUNDLING
RELAY CONNECTOR ATTACHING
SERGE KILLER ATTACHING
CIRCLE CORE ATTACHING
BRACKET ATTACHING
CONTINUITY CHECK
APPEARANCE CHECK
1









	QT. OF POLES(PINS ON CHILD SIDE)					
 	2	3	4	5 ~ 7	8~15	
~200	• • •	• • •	• • •	• • •	• • •	
201~500	• • •	• • •	• • •	• • •		
501~1000	• • •	• • •.	• • •	• • •	• • •	
1001~	• • •	• • •	• • •	• • •		

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P		L	200	201 500	501 	1001
11 POLES OR MORE		2	•••	***	•••	•••
OK WOKE	UNIT	3	• • •	•••	•••	•••
		4	•••	•••	•••	***
		5	•••	•••	•••	• • •
		6	•••	•••	• • •	•••
		7	•••	•••	•••	•••
4~10	2	2	•••	•••	• • •	•••
POLES	PER UNIT	3	•••	•••	• • •	•••
		4	•••	•••	• • •	•••

L: WIRE'S LARGEST LENGTH

P: QUANTITY OF CONNECTORS ON PARENT SIDE

C: QUANTITY OF CONNECTORS ON CHILD SIDE

FIG. 11

	G	T. OF POL	ES(PINS ON	CHILD SIDE)	
	2	3	4	6~7	8~10	11~15
~200	• • •	• • •	• • •	• • •	• • •	• • •
201~500	• • •	• • •	• • •	• • •	• • •	• • •
501~1000	• • •	• • •	• • •	• • •		• • •
1001~	• • •	• • •	• • •	• • •	• • •	• • •

F I G. 12

WADE LENGTH	OPERATION TIME EST	TIMATION FUNCTION
WIRE LENGTH	VINYL-COVERED	OTHERS
~600	OPERATION TIME =0.9*WIRES	OPERATION TIME =1.1*WIRES
601~900	• • •	
901~1200	• •.	• • •
1201~1500	• • •	
1501~1800	• • •	• • •
1801~2000		• • •
2101~2400		
2401~3000	• • •	

FIG. 13

QUANTITY OF WIRES FOR CC	OPERATION TIME ESTIMATION FUNCTION
1	OPERATION TIME =1.4+8.1*NO.OF POINTS FOR CC
2	
3	• • •
4	• • •
5	
6	
7	• • . •
8	• •
9	• • •

QUANTITY OF WIRES FOR CC	OPERATION TIME ESTIMATION FUNCTION
1	OPERATION TIME =4.4*NO.OF POINTS FOR CC
2	• • •
3	•. • •

QUANTITY OF WIRES FOR CC	OPERATION TIME ESTIMATION FUNCTION
1	OPERATION TIME =1.2*NO.OF POINTS FOR CC
2	• • •
3	• • •

WIRE LENGTH	OPERATION TIME ESTIMATION FUNCTION
~600	OPERATION TIME =1.2*QT.OF WIRES
601~900	
901~1200	• • •
1201~1500	• • •
1501~1800	• • •
1801~2000	
2101~2400	• • •
2401~3000	• • •

FIG. 17

KIND	OPERATION TIME ESTIMATION FUNCTION
INLET, FUSE HOLDER	OPERATION TIME =14.6*QT.OF WIRES+5.4*QT.OF COMPONENTS
MICRO SW, CONNECTOR	•

0 0	2 OR MORE
OPERATION TIME =3.2*NO.OF POINTS WIREMARK ADHERING	1
OPERATION TIME ESTIMATION FUNCTION	QUANTITY OF WIRES

WIRE'S LARGEST LENGTH	OPERATION TIME ESTIMATION FUNCTION
~ 500	OPERATION TIME =0.7+1.0*NO.OF CONNECTORS+QT.TERMINALS
501∼	•

KIND	OPERATION TIME ESTIMATION FUNCTION
80,100,150	OPERATION TIME =3.2*NO.OF POINTS FOR BIND
CLOSED TERMINAL, CORE CROSS FIXING	•

S OPERATION TIME ESTIMATION FUNCTION	OPERATION TIME =2.9*NO.OF POINTS FOR TAPING +0.043*TAPING LENGTH+21*(NUMBER OF BRACHES +QT. OF CLOSED TERMINAL)	•	•
QUANTITY OF WIRES	3 OR LESS	4 TO 10	11 OR LESS

TUBE KIND	OPERATION TIME ESTIMATION FUNCTION
TUBE	OPERATION TIME =5.4*NO.OF POINTS FOR TUBE ATTACHING +0.1*TUBE LENGT
OTHERS	OPERATION TIME =5.4*NO.OF POINTS FOR ATTACHING OTHERS THAN TUBE +0.1* LENGTH OF OTHERS THAN TUBE

PROCESS STEP	TIME FACTOR
FULLY-AUTOMATED DUAL TERMINAL C.C	1.12
CONTINUOUS TERMINAL C.C	1.16
SEPARATE TERMINAL C.C	• • •
FULLY-AUTOMATED DUAL TERMINAL IDC(MULTI)	• • •
FULLY-AUTOMATED DUAL TERMINAL IDC(COPPER FOIL SHIELD)	• • •
FULLY-AUTOMATED DUAL TERMINAL JDC(SIMPLE)	• • •
SEMI-AUTOMATED IDC	• • •
FULLY-AUTOMATED CUTTING	• • •

FIG. 24

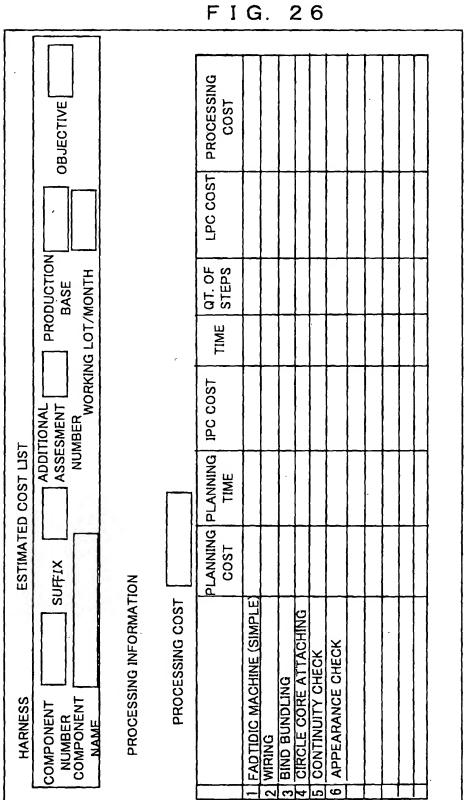
2	4/	3	8

	IPC	LPC	TOTAL	IPC	LPC	TOTAL
	COST	COST		COST	COST	
	(YEN/Hr)	(YEN/Hr)	(YEN/Hr) (YEN/Hr)	(YEN/	(YEN/	(YEN/
FULLY-AUTOMATED CUTTING				Sec	Sec	cas
MANUAL C.C						
SEPARATED TERMINAL C.C						
CONTINUOUS TERMINAL C.C.						
FADTIDC(MULTI)						
FADTIDC(SIMPLE)						
FADTIDC(COPPER FOIL SHIELD)						
SOLDERING						
INSULATION SLEEVE INSERTION						
WIRE MARK ADHERING						
SINGLE CN INSERTION INTO HOUSING						
WIRING						
TERMINAL INSERTION INTO WIRES						
BIND BUNDLING						
TUBE ATTACHING						
THERMAL CONTRACTION TUBE ATTACHING	5					
~						
RELAY CONNECTOR ATTACHING						
SERGE KILLER ATTACHING						
CIRCLE CORE ATTACHING						
BRACKET ATTACHING						
CONTINUITY CHECK						
APPEARANCE CHECK		·				

FIG. 25

HARNESS ESTIMATED COST LIST	
COMPONENT SUFIFX ASSESSMENT BASE NUMBER BASE COMPONENT BASE NUMBER WORKING LOT/MONTH	ЕСТІVЕ
UNIT COMPONENT COST	
MATERIAL COST PROCESSING COST	
MATERIAL LOSS = =MATERIAL COST = *MATERIAL LOSS COST = COST	
MATERIAL MANAGEMENT COST = MATERIAL COST	
PROFIT MARGIN = (PROCESSING COST +MATERIAL MANAGEMENT COST + MANAGEMENT COST + MANAGEMENT COST + MANAGEMENT + MANA	
COST RNSPORTATION COST	
+ SHEET/BAG COST + WRAPPING COST + DIVIDER COST	

26/38 FIG. 26



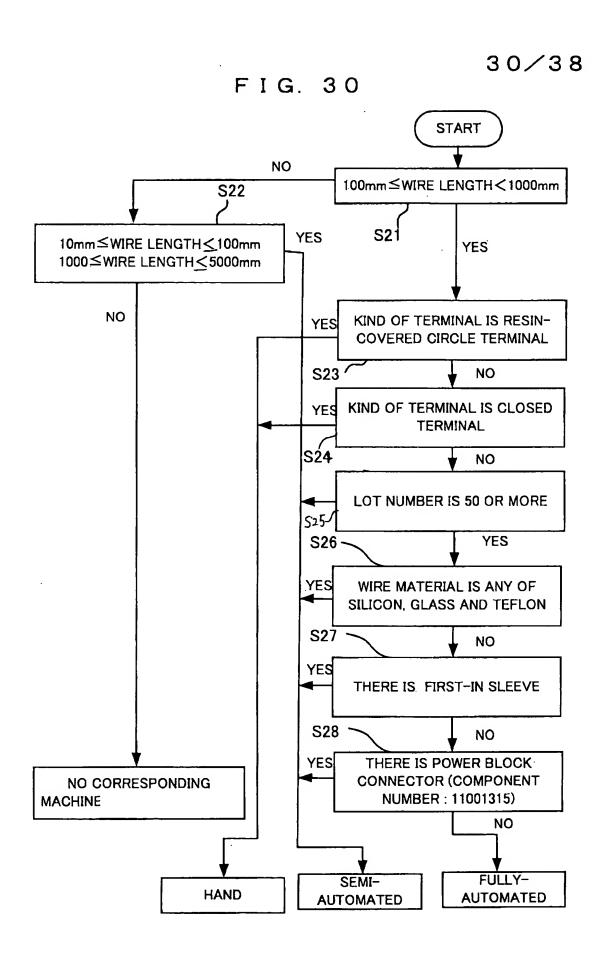
COMPONENT SUFIFX COMPONENT SUFIFX COMPONENT SUFIFX COMPONENT SUFIFX COMPONENT SUFIFX COMPONENT SUFIFX SUFIF	MPONENT OK NAME CANSEL C.C
SIMPLE WIRE LENGTH COPPER FOIL SHIELD WIRE QT.OF.UNUSED PINS IN ONE CONNECTOR IS HALF OR MORE OF TOTAL QUANTITY OF PINS	REFERENCE DIAGRAM 1 INSULATION DISPLACEMENT CRIMPING(SIMPLE) IMAGE
MULTI THERE ARE TWO OR MORE CONTINUOUS UNUSED PINS IN PARENT CONNECTOR WIRE LENGTH	REFERENCE DIAGRAM 2 INSULATION DISPLACEMENT CRIMPING(MULTI) IMAGE

F I G. 28

COMPONENT SUFF	/ X	PONENT OK IAME CANCEL
IDC		C.C
CLOSED TERMINAL INCLUDED RESIN-COVERED CIRCLE TERMINAL INCLUDED MICRO SW, INLET, OR FUSE HOLDER INCLUDED FIRST-IN SLEEVE INCLUDED	WIRE LENGTH WIRE MATERIAL IS SILICON ,GLASS OR TEFLON	☐ CLOSED TERMINAL INCLUDED ☐ RESIN-COVERED CIRCLE TERMINAL INCLUDED ☐ MICRO SW, INLET,OR FUSE HOLDER INCLUDED ☑ FIRST-IN SLEEVE INCLUDED
CLOSED TERMINAL INCLUDED RESIN-COVERED CIRCLE TERMINAL INCLUDED MICRO SW, INLET, OR FUSE HOLDER INCLUDED FIRST-IN SLEEVE INCLUDED	WIRE LENGTH WIRE MATERIAL IS SILICON ,GLASS OR TEFLON	☐ CLOSED TERMINAL INCLUDED ☐ RESIN-COVERED CIRCLE TERMINAL INCLUDED ☐ MICRO SW, INLET, OR FUSE HOLDER INCLUDED ☐ FIRST-IN SLEEVE INCLUDED
CLOSED TERMINAL INCLUDED RESIN-COVERED CIRCLE TERMINAL INCLUDED MICRO SW. INLET,OR FUSE HOLDER INCLUDED FIRST-IN SLEEVE INCLUDED	WIRE LENGTH WIRE MATERIAL IS SILICON ,GLASS OR TEFLON	☐ MICRO SW, INLET, OR FUSE
•		•
•		

29/38 FIG. 29 **START S11** WIRE LENGTH SATISFIES FOLLOWING CONDITION MULTI: 500mm ≤WIRE LENGTH <1000mm SIMPLE:100mm ≤WIRE LENGTH <2000mm YES. **S12** LOT NUMBER IS 200 OR MORE NO **S13** YES NO NUMBER OF KINDS OF **CONNECTORS IS 4 OR LESS S14** YES STATE OF UNUSED PINS SATISFIES FOLLOWING CONDITION YES MULTI: TERE ARE NO TWO CONTINUOUS UNUSED PINS IN PARENT CN SIMPLE:QUANTITY OF UNUSED PINS IN ONE CONNECTOR IS LESS THAN HALF OF TOTAL QUANTITY OF PINS NO **SEMI-AUTOMATED FULLY-AUTOMATED** SIMPLE: PARENT CONNECTOR:1 CHILD CONNECTOR:1 **MULTI: PARENT CONNECTOR:1** CHILD CONNECTOR:PLURAL COPPER FOIL SHIELD: PARENT CONNECTOR:1

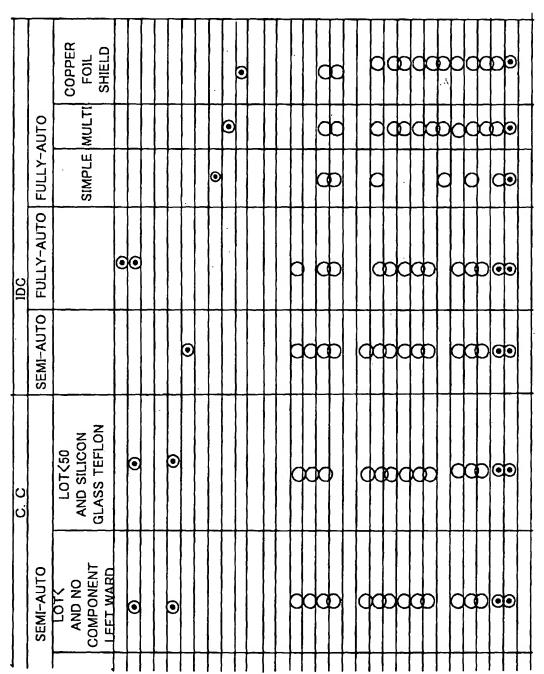
CHILD CONNECTOR:1



31/38 FIG. 31

	111			+	+		+	+	-		-	+	0	0	0	0	0		+	+ ok	+	de	
	SLEEVE																						
NUTO	MICRO- SW ,INLET, FUSE	•					9				0			0	0	0	•	0		C			9
C. C SEMI-AUTO	RESIN- 40≦L<45 MICRO- COVERED 5000≦ L <sw inlet,="" sleeve<br="">TERMINAL 9900 FUSE</sw>	•	•						0	0	0	d	0	0	0	0	q	0	o ^c				9
	RESIN- COVERED TERMINAL	•	•						0		0			0	С	0	0	0	C)
HAND	CLOSED TERMINAL			•					0	O	0											00	5
		SAIDC FULLY-AUTOMATED CUTTING MANIAL C.C.	VIED I	FULLY AUTOMATED -DUAL TERMINAL C.C.	FABTIBE(SIMPLE)	را حيا -	WIRING -PREPARATION WORKS	INSULATION SLEEVE INSERTION	WIRE MARK ADHERING	NAL		SINGLE CN INSERTION IN TO HOUSING	TERMINAL INSERTION INTO WIRES	BIND BUNDLING	TAPING BUNDLING		AL CON	BUNC	KELAY CONNECTOR ALLACHING	ACHIN	CT AT		APPEARANCE CHECK

32/38 FIG. 32



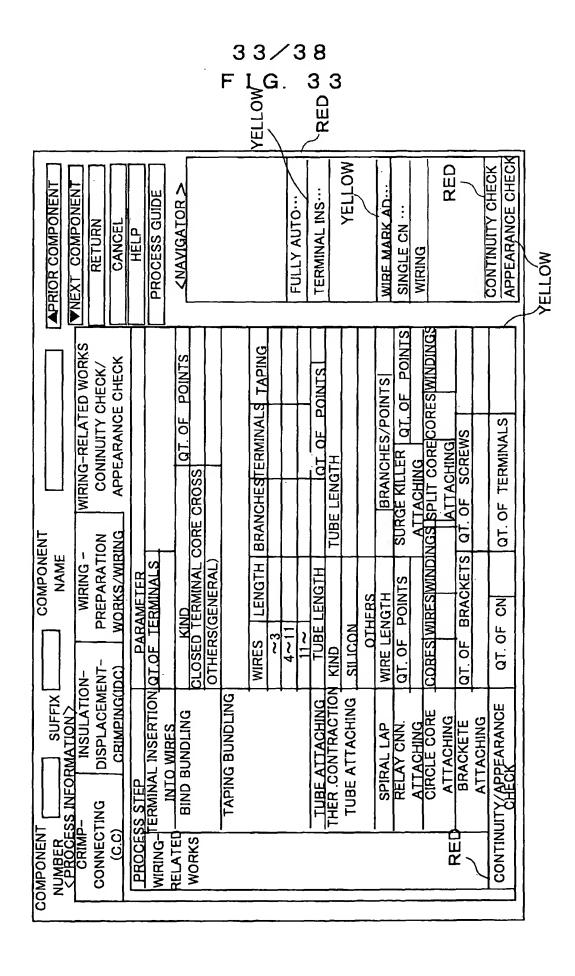
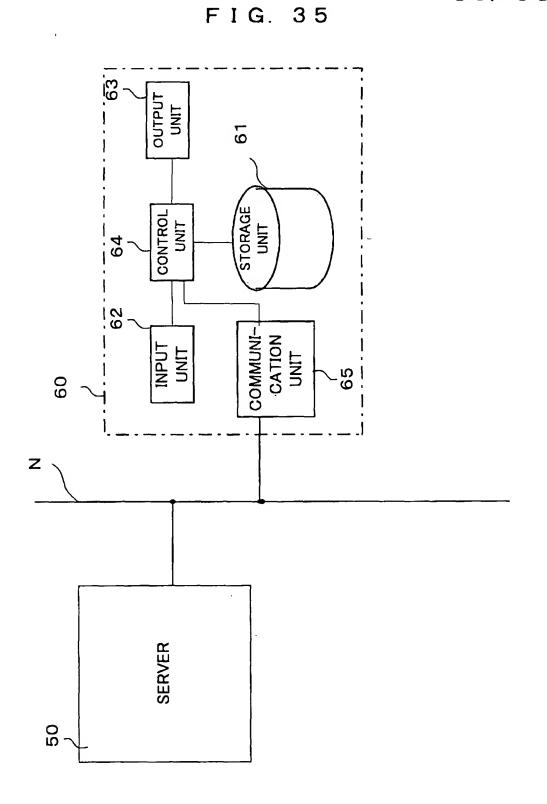


FIG. 34

		•
	_	
FAOTIBC (SIMPLEI)		
FADTCC (COPPER FOIL SHIELD)		
FADTCC (MULTI)		
SEPARATE TERMINAL CC		
CONTINUOUS SEPARATE TERMINAL TERMINAL CC		
FADTCC		
PROCESS STEP	ELECTRICITY DEMAND RATIO	LOGICAL AMOUNT OF CONSUMED ELECTRICITY

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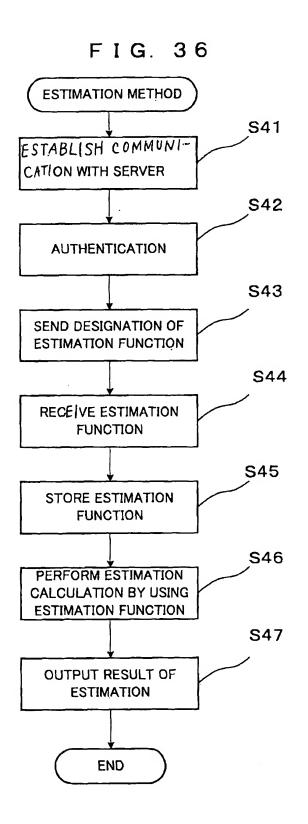
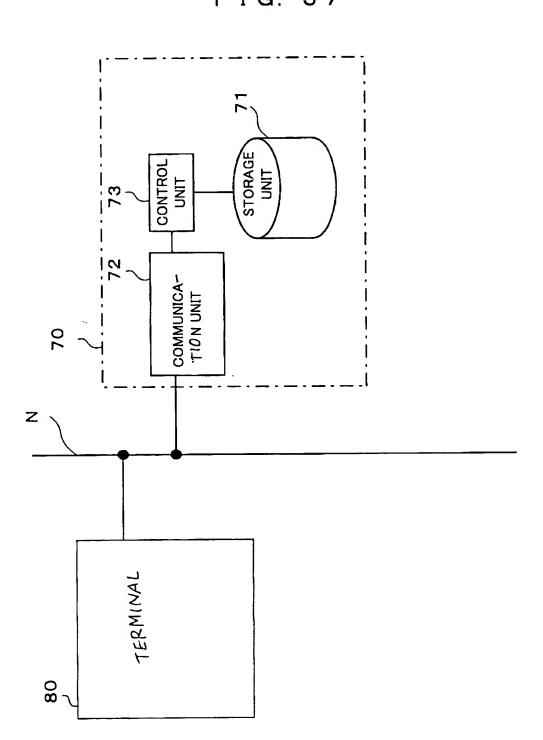


FIG. 37



38/38 FIG. 38

